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A nickel-based pectin coordination polymer as an oxygen reduction reaction catalyst for proton-exchange membrane fuel cells

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© the Partner Organisations 2018. Membrane-electrode assemblies (MEA) with a cathode catalyst made of a nickel sodium pectate complex PG-NaNi with a 25% substitution of sodium for nickel, and with a commercial anode catalyst made of platinum black have been successfully created. Tests in a H2/O2 proton exchange membrane fuel cell (PEMFC) yielded the values of the maximum current density of 59 mA cm-2 and the maximum power density of 5.9 mW cm-2. These results permit the development of environmentally friendly and stable cathode catalysts for PEMFCs made of a readily available biological raw material, pectin.

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